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Managing Editor: TIM NORTH

Production Editor: KEVA NORTH

Editorial Office: C/o P.O. BOX 588, BOWRAL, N.S.W. 2576 - Tel: (048) 61-1884

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Front Cover:

Buda, Castlemaine, Victoria.

Ernest Levy and the main facade of the house: circa 1900.

Contents

More on Conservation	page 3
Before the Eucalypts	page 4
Historic Buda	page 7
Australian Garden History Society	page 12
Rhododendrons, Section Vireya - Old and New	page 13
Book Reviews	page 17
My Favourite Gardening Book	page 18
Early Botanical Exploration in Western Australia and its effects in Europe	page 19
Cottage Garden Notes	page 23
Colchicum Nomenclature	page 24
Plants Wanted	page 24
Garden Cuttings	page 26
Two New Vegetables	page 28
A Colonial Garden Seed Collection	page 28

Contributors to this Issue

Kathleen Napier

is an English lecturer who has recently retired. Her interest in botany came from a grandfather who was an early member of the Western Australian Naturalists Society. While working in London she enjoyed the excitement of chasing up botanical history in various natural history libraries both in Britain and on the Continent, especially in London, Paris and Vienna. She is a committee member of the Western Australian Botanical History Group. Her other interests include art history.

J. Clyde Smith

was a foundation member of the Illawarra Branch of the Australian Rhododendron Society, in 1967, and has since held various positions in the organization. Currently he is Vice-President of the National Council and editor of its journal "The Rhododendron". He participated in the Society's visit to Papua-New Guinea to study and collect Vireya rhododendrons.

Peter Cuffley

is well known for his books on collecting and in particular for his recently published book "Cottage Gardens in Australia". He has spent many years as a curator of museums and as a freelance consultant on television productions, period restoration and other history projects. His latest book "Creating Your Own Period Garden" is a practical handbook for those restoring or re-creating a period garden scheme. Besides being Publicity Officer for Buda, Peter also undertakes garden design and finds time for his own country garden set in a pleasant valley in Central Victoria.

Mary Davis

is a landscape designer and horticultural consultant. She and her husband are at present renovating an old farmhouse on the north-west outskirts of Sydney.

More on Conservation

I make no apology for returning once more to the subject of conserving gardens and garden plants that are in danger of being lost. My excuse, if one is needed, lies in Newsletter No 4 (Spring 1984) of the N.C.C.P.G., which reached me the other day. The N.C.C.P.G. (National Council for the Conservation of Plants and Gardens) was formed in the U.K. just a few years ago; already it has some thirty or so active groups, comprising 2,800 members, over the length and breadth of the British Isles, as well as one in Ireland. News of what these groups are doing makes interesting — and stimulating — reading.

Members of the Devonshire Group, for example, propagated 400 rhododendron cuttings from a garden, Lee Moor, which was due to disappear under the bulldozers, and advised on the removal to a new site of some 40 very large specimens. This group is also conducting historical and horticultural research into the garden at Endsleigh, designed by Repton in 1814.

The Hampshire Group is involved with the restoration of Marsh Court, an early Jekyll/Lutyens garden, while the London Group is advising on the restoration of E.A. Bowles' famous garden at Myddleton House, including the location of plants introduced by Bowles.

In Yorkshire the Group is helping to identify plants surviving at Reginald Farrer's former home. Other groups hold plant sales — at which rarities like *Kniphofia* "Northiae", the golden *Liriope* "Amherst" and *Helleborus* "Apple Blossom" have turned up; they mount exhibitions at local shows, carry out surveys of private plant collections and of plants available from commercial sources.

Admittedly we do not have Repton or Jekyll masterpieces studding our countryside, but we do have a significant heritage of fine old gardens; some of these have already disappeared, many more are threatened, while others have been "restored" in a totally inappropriate manner. And one only needs to look through a few nineteenth century nursery catalogues to appreciate the wealth of fine plants that gardeners of those times had available to them; many of these have been squandered and many more are hard to find, even in private collections.

It is surprising to me that, while we have in this country a highly vocal, and sometimes militant, group who will go to virtually any lengths to conserve the natural environment, when it comes to conserving gardens and garden plants there is generally apathy and ignorance.

The important thing to realise about the work of the N.C.C.P.G. is that it is done, very largely, not by professional horticulturists, or nurserymen, or landscape designers, but by dedicated **amateurs**. The reason why, by comparison, we do so little in this country lies partly in the fact — and mention of this has been made previously in this Journal, by Tom Garnett — that the gardening scene here has for many years been dominated by the professionals, so that the amateur has lost, or never possessed, the courage to do his or her "own thing". Another, and contributory reason is the fact that the general gardening public has insufficient opportunities of seeing **good** gardens and a wide range of garden plants at all times of the year. Its vision of what a garden should be is too often based on that which won the local garden competition, and of the plants to grow in it by what is available at the local "super-garden-market" or whatever the current term may be — nurseries they most definitely are not. Neither garden competitions nor garden supermarkets are likely to extend anyone's horticultural horizons very much.

So where does this lead us? It leads us to the need to extend those horizons — for the interested, the keen but not particularly knowledgeable, gardener, so that he or she starts to **care**. England has a long gardening tradition, and I may well be accused of being biased when I say that they are the best, and the most caring, gardeners in the world. But this is no reason why we should be labelled among the worst and the least caring. We do have a considerable number of fine gardens — not all of them "historic" nor very large, but laid out with discernment, with interesting or original features, stocked with fine and interesting plants — that the public never sees!

The first step, therefore, may well be a campaign to have more significant gardens open to the public, at least at certain times of the year. We need many more projects like that at "Buda", which is described in this issue, and in which, as Peter Cuffley states, "efforts have been made to attract as much community support as possible, in particular volunteers to assist any paid staff". From this, hopefully, will come the realisation how fragile these gardens are, knowledge of the threats that face them, and the desire to do something to conserve them. So the ranks of the dedicated amateurs will be augmented.

TIM NORTH

Contributions to this Issue (continued)

Dr Greg Moore

after completing a Botany degree with honours at Melbourne University in 1975 commenced post-graduate studies, and was awarded a Ph.D in 1981. He has been lecturing in plant science and arboriculture at V.C.A.H. Burnley since 1979, and has a special interest in the growth, physiology and ecology of trees.

Suzanne Price

is in process of building up her nursery for rare, choice and dwarf bulbs in Macedon, Victoria — and rebuilding it after the disastrous Ash Wednesday fires last year. She has become increasingly concerned about the names under which bulbs are being sold in this country and is attempting to sort out and correctly name the smaller bulbs that are available here. This, she says, is proving to be a monumental task, as many more than she suspected have been incorrectly named.

Before the Eucalypts

by G.M. Moore

Introduction

Australia is often seen as an ancient and unchanging land — a land of timeless grandeur. This may be true of our soils, our mammals and some of our landforms. Much of our flora, however, is comparatively young and dynamic. There are some ancient and many endemic components of the flora, but most of the significant elements are relatively recent in their origins.

Early and more recent visitors from Europe have often noted the harshness of the environment and the uniqueness of the vegetation of Australia. They commented, too, on the uniformity of the flora — a uniformity that belies the subtle variation and the complexity of relationships. Much of this subtlety is due to the recent derivation of the flora.

The Present

The vegetation of Australia can be seen, broadly, as consisting of plant communities dominated by two genera - *Eucalyptus* and *Acacia*. Because different communities are often dominated by species from these genera they may appear to be superficially alike. Many of the species resemble each other and are clearly closely related.

The Australian flora is renowned for its uniqueness, it has many endemic species, but most of the families represented also occur elsewhere. The domination of the flora by flowering plants confirms the view of the flora as recently derived. The gymnosperms present can be seen as remnants of a past flora, as can many of the more primitive flowering plants.

The similarity of many species of *Acacia* and *Eucalyptus* suggests that they have either developed or migrated to Australia recently. The fossil record shows that eucalypts have been present for at least 38 million years and acacias for at least 27 million years as significant components of the Australian flora (fig 1). This may seem a long time, but in geological terms it is quite short. Parts of the Australian continent are over 600 million years old, and the gymnosperms have been around for some 300 million years.

Because of the history of *Eucalyptus* and *Acacia* in Australia is short, the processes of speciation are far from complete. Hence the similarity and the high level of hybridisation that occurs between species of these genera. They are not stable genera, but dynamic, changing, and evolving genera. The flora is different from that which dominated Australia in the past and will certainly change in the future.

Australia's isolation from other land masses suggested to early botanists that the vegetation had developed independently, but that elements of the flora had migrated from elsewhere. Three components of the flora were identified:

1. Australia, eucalypts dominate
2. Indo-Malaysian, the northern rainforests
3. Antarctic, the southern rainforests

The first of these is of Australian origin but the others were believed to have migrated here from Asia and the southern continents respectively. Such a view is still held by many people.

In recent years, however, although these three elements are still recognized, it has become apparent that all are of Australian origin and that the migration of species has played a minor role in the development of the flora. The questions that remain to be resolved, then, are where did the three different elements arise

and why have they persisted until to-day? The answers lie in the past.

The Past

Perhaps the best way of explaining Australia's flora is to review the geological history of the continent. This is summarized by the theory of continental drift, which postulates that all of the continents were once a giant land mass called Pangea (fig 2). This massive continent was bisected into two about 100 million years ago, forming two super-continent; Laurasia in the north and Gondwanaland in the south. Gondwanaland consisted of the continents now called South America, Africa, Antarctica, India and Australia, as well as some smaller masses such as New Zealand.

The concept of drifting continents has had a long appeal for botanists. It explains the similar fossil records of the southern continents, and why Australian tropical rainforests have more families in common with those of India than its near neighbours, New Guinea or Malaysia. For Australian botanists, the theory of continental drift can be used to interpret the present flora, if subsequent climatic variations are considered.

Some 100 million years ago, in the mid-Cretaceous period, the climate of Australia was warm and moist. The vegetation was a uniform and widespread sub-tropical rainforest. This was the flora of Gondwanaland and as fragmentation of the super-continent continued, it gave rise to a pan-Australian flora. The genera *Nothofagus*, *Araucaria* and *Podocarpus* and the families Myrtaceae and Protaceae were all represented in the early Australian flora.

ERA	PERIOD	AGE (x 10 ⁶ y)	EPOCH	EVENTS
CAINOZOIC	QUATERNARY		PLEISTOCENE	
		2.5		
	TERTIARY		PLIOCENE	● AUSTRALIA SLIGHTLY SOUTH OF ITS PRESENT POSITION - CLIMATE COOLER
		10		
			MIOCENE	● ARID ZONE FLORA DEVELOPED
		27		● ACACIAS PRESENT
			OLIGOCENE	● EUCALYPTS PRESENT
		38		● SEPARATION OF AUSTRALIA FROM SOUTHERN CONTINENTS
			Eocene	
		54		
			PALAEOCENE	● PAN AUSTRALIAN FLORA DEVELOPED FROM GONDWANAN STOCK
		65		
MESOZOIC	CRETACEOUS		UPPER	
		110		● INUNDATION OF PARTS OF AUSTRALIA
			LOWER	● ANGIOSPERMS FIRST APPEAR
				● DEVELOPMENT OF GONDWANALAND
JURASSIC		135		● RIFTING OF PANGAEA

FIG. 1. GEOLOGICAL TIME SCALE AND MAJOR EVENTS IN AUSTRALIAN VEGETATION.

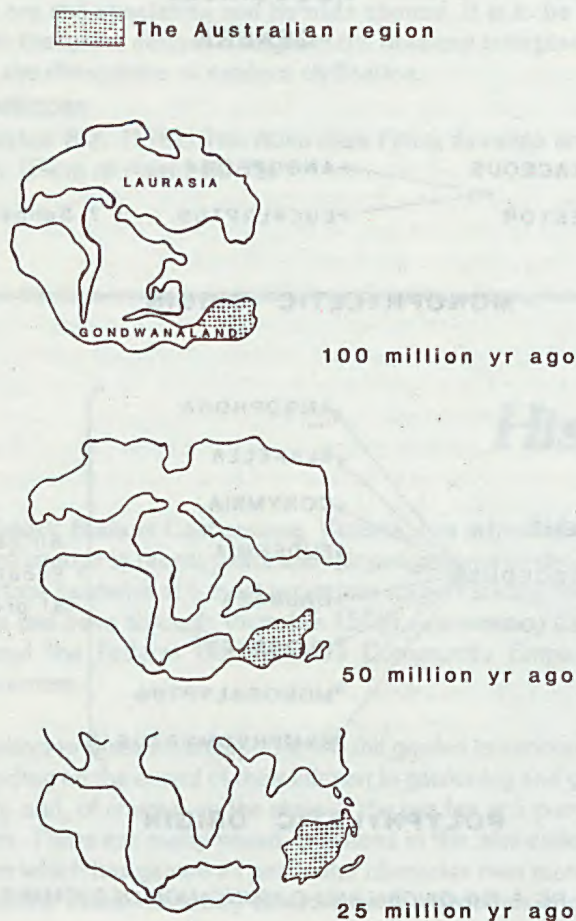


FIG. 2. CONTINENTAL DRIFT, SHOWING THE FORMATION OF GONDWANALAND AND AUSTRALIA (after Simpfendorfer, 1975)

At this time, the pan-Australian flora would have resembled those pockets of sub-tropical rainforest that remain in Queensland and northern New South Wales to-day. Thus the so-called Indo-malayan element of the flora is really of Gondwanan origin, supplemented by the later arrival of immigrant species from the north (fig 3). These may have arrived by land bridges that have existed from time to time or by long distance seed dispersal.

About the middle of the tertiary period, some 30 million years ago, the climate changed. It became cooler and rainfall decreased and became more seasonal. The sub-tropical rainforests retreated and were supplanted by temperate forests like those that persist in Tasmania to-day. The flora there resembles that of Gondwanaland at about this time. Thus the Antarctic element too has derived from the Gondwanan flora, and has been altered by climatic change.

Both the Indo-malayan and the Antarctic elements have undergone change in the millions of years since their derivation from the Gondwanan stock. The Tasmanian flora is more primitive than that of the mainland, with many families that occur in southeastern Australia being absent. Some of these never occurred in Tasmania and others were eliminated by the cold periods.

Having seen that the Indo-malayan and Antarctic elements are of Gondwanan origin, how then has the Australian element been derived? *Eucalyptus* has certainly developed in the Australian region. It seems that the genus may have been present as a minor element of the Gondwanan flora, but as the continent

became drier the genus expanded and occupied the more adverse sites, which the rainforest could not inhabit. The genus was not, however, able to occupy the arid zone, where the rainfall is below 25 cm per year.

Although widespread, the genus *Acacia* dominates the more arid regions. This genus is well represented on other southern continents, but one section — the *Phyllodinae* — dominates in Australia. These are acacias well adapted to the dry environment. It has been suggested that they migrated to Australia via Africa and Asia, but a Gondwanan origin cannot be discounted. It appears that there may have been two periods of acacia migration, one being more recent than the other.

The domination of the Australian flora for so long by angiosperms (flowering plants) suggests that Australia is near the site of origin of this major plant group. This view is the opposite of that expressed by the earlier European botanists that the angiosperms evolved in the northern hemisphere and migrated elsewhere. The flowering plants are almost certainly of southern or Gondwanan origin, and Australia was one of the first land masses to fall to their advance. Other land masses, including some in southern Laurasia, were colonised at much the same time.

Continental drift can explain the derivation of three major flora elements, but what of the North-South and East-West divisions that are superimposed upon this pattern? From the mid-Cretaceous period, some 110 million years ago, parts of the continent were inundated. This flooding isolated parts of the continent

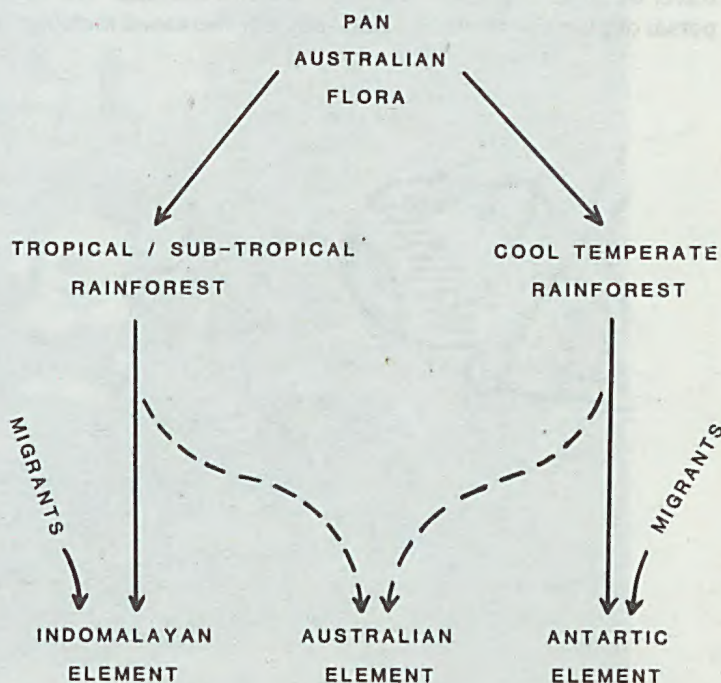


FIG. 3. ORIGIN OF THE FLORISTIC ELEMENT OF AUSTRALIA

for about 15 million years due to the existence of shallow seas (fig 4). As the land re-emerged, an arid period and the deposition of limestone sediments has meant that the effects of the flooding are still observable.

Perhaps the most striking result of this inundation is the discontinuity in the vegetation of south-west Western Australia and that of southeastern Australia. About three-quarters of the species are endemic to the south-west region, but generic endemism is quite low. This indicates that the floras have a similar origin, but have evolved in isolation for a long time. Other discontinuities occur around the Adelaide region, along the east coast and in the north-west of the continent, but they are not so striking or well documented.

The present flora can thus be seen as consisting of only two elements:

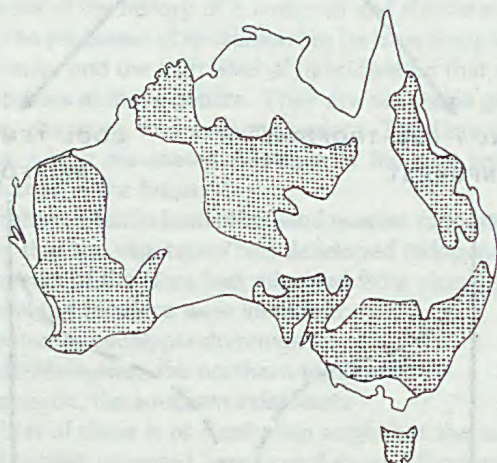
1. The Gondwanan, or relictual component of the closed forests in both the sub-tropic and temperate areas
2. The Australian, or autochthonous component that is often dominated by eucalypts.

The Australian element is still changing and evolving — new species develop and others fade to extinction. The relictual elements too are dynamic. New species have been added to them due to migration and other species have not been able to survive the climatic changes or the competition. Both elements can be traced to the Gondwanan flora, with the Australian component being a more recent and derived element.

The Future

Although looking towards the future is fraught with pitfalls, especially when man's influence on the flora cannot be gauged, some predictions can be made, based on the knowledge of the Australian floras of the past and present. The processes of change will continue, often accelerated by human activity.

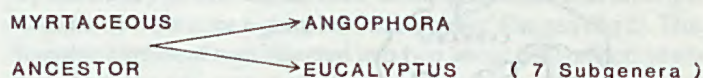
At present the flora is being supplemented by the arrival of a great many immigrants. The best example of these are the weeds, but there are other rarer and naturalised plants too. Much of this migration can be attributed to human activity both in terms of travel between countries and travel within Australia. The dispersal of plants is greatly enhanced by our increased mobility.



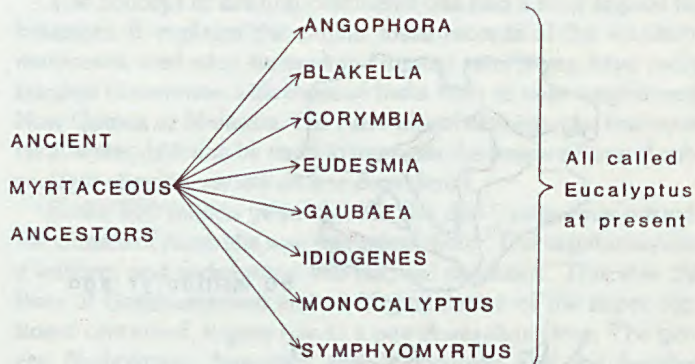
Exposed land

FIG. 4. THE MID-CRETACEOUS INUNDATION OF THE AUSTRALIAN REGION

RECOGNISED GENERA



MONOPHYLETIC ORIGIN



POLYPHYLETIC ORIGIN

FIG. 5. THE ORIGINS AND CLASSIFICATION OF EUCALYPTS

Eucalyptus is a very dynamic genus which is still in the throes of speciation. It appears that the genus is not as uniform as was once thought. The group appears to have arisen independently in several ways. The floral structure, seed anatomy and patterns of hybridisation all suggest that there may have been multiple origins from within the ancient Myrtaceae. Such considerations are behind the moves to sub-divide the genus into a number of distinct genera (fig 5).

As speciation continues within the genera *Eucalyptus* and *Acacia*, over the millions of years to come species will be sorted. Some will disappear, differences between species will be emphasised and hybridisation would probably be reduced. Such processes would continue while conditions remain as they are. Climatic and geological changes could alter the processes of evolution and the flora that subsequently develops.

Conclusion

The present flora of Australia is the product of a long history of climatic, geological and botanical interactions. Such processes often take millions of years, but the changes that occur are often profound and influence the vegetation for millennia to come. The processes of change and speciation are still occurring, and what happens to-day will certainly influence the flora of Australia in the years to come.

That the Australian flora is still in a state of flux is well illustrated by the biology of its major genera, *Eucalyptus* and *Acacia*.

Before the Eucalyptus (continued)

Both are still speciating and hybrids abound. It is to be hoped that in the future natural changes in the flora can take place, free from the disruptions of modern civilisation.

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Historic Buda by Peter Cuffley

Historic Buda at Castlemaine, Victoria, has attracted a great deal of interest in recent years and the programme to restore the 2-hectare garden is at a most important stage. Funding for these works has been through Victoria's 150th Anniversary Committee and the Federal Government's Community Employment Programme.

Visitors to Buda have responded to the garden in various ways, depending on the extent of their interest in gardening and garden history and, of course, on the state of the garden at a particular season. There are many vexed questions in the restoration of a garden which has gained its particular character over more than 120 years. These obviously confront most individuals or groups

who take on such a task and are faced with the need to make a whole range of important decisions. A garden may, on a perfect day in spring, give the impression that all is well and that very little has changed since the balmy days now beyond memory. Those with a fairly long association with Buda are inclined to feel that in modern times the garden was at its best in the spring of 1981; it was as if the spirit of the place put forth its very best face to farewell the last of the Leviny family, who died on 12th October 1981, in her 99th year. This impression was engendered by a season of vigorous growth and a brilliant array of flowers, the result of a very wet winter. The fundamental state of the garden was, however, subsequently found to be rather less than ideal and in places in serious decline.



THREE GENERATIONS OF THE LEVINY FAMILY WITH THE NEWLY CONSTRUCTED TENNIS COURT IN THE BACKGROUND.

Historic Buda (continued)

Now owned by the Castlemaine Art Gallery and Historical Museum, Buda is unique in having been occupied by the one family for over 120 years. Hungarian-born Ernest Leviny trained in Vienna as a watchmaker and jeweller; he worked at his craft in Rome, Paris and London, and in 1853 set off for the Australian goldfields. His plan to make his fortune in three years and return to London was modified to the degree that he made his fortune in six years and settled down to spend the rest of his life in Castlemaine.

In 1859, at the relatively young age of 41, he purchased "Delhi Villa", a house built in 1857 for a retired Indian Army officer. Sadly, in 1860, Mary, his wife of only two years, died along with their son Charles. In 1864 Ernest Leviny married Bertha Hudson and they had ten children between 1865 and 1885. The garden apparently developed its present scale and form during those years. An important element in shaping this garden would surely have been the influence of Ferdinand von Mueller, a good friend of Ernest Leviny, who is said to have stayed there while working on the Castlemaine Botanic Gardens.

In the early 1970s the last surviving daughter, Miss Hilda Leviny, arranged for the property to be acquired by the Castlemaine Art Gallery. This was facilitated by a generous personal donation to which was added a grant from the Victorian Government.



RECONSTRUCTED STEPS AND CLIPPED BOX POINT UP A LONG FORGOTTEN ALIGNMENT WITH THE DISTANT PERGOLA.

Buda has now been open to the public for over two and a half years, a period in which much experience has been gained in the overall management of an historic property. Efforts have been made to attract as much community support as possible and in particular volunteers to assist any paid staff in both the house and the garden. An example of such community support was a generous donation from the Castlemaine Rotary Club in 1982 for the purchase of materials to install ring mains throughout the garden. While some of the necessary trenches could be dug using a "Ditch Witch" the task of hand digging in some of the more difficult or sensitive areas had to be tackled.

A long term approach to the restoration and maintenance of this important garden began with two important steps taken by the first Administrator, Mrs Christine Forster. The first was an approach to Clive and Margaret Winmill of the noted specialist nursery "Badgers Keep" at nearby Chewton, and the second a phone call to John Patrick of Burnley Horticultural College. A garden committee was formed and a number of site inspections were undertaken. Out of this committee came a set of recommendations and a \$5000 grant for tree surgery was applied for. At this time Clive Winmill wrote an independent report, the forerunner of his very thorough and extensive study on the whole operation and restoration of Buda. Under the second Administrator, Roger Harrop, successful moves were made to have the Winmills appointed Principal Garden Advisors.

Restoration of the garden has been funded through a Commonwealth Employment Programme grant and the work is moving ahead under the supervision of Clive and Margaret Winmill. Clive, who prepared the detailed programme required for such an undertaking, is working directly with the team, labouring well beyond the call of duty to see that the restoration is kept to the very highest standards.

With its marvellous assembly of mature trees and shrubs and a layout which teases one on in the best traditions of garden design, Buda retains great charm and a feeling of real maturity. In the Survey of Historic Gardens undertaken by the National Trust of Australia (Victoria) in conjunction with the Garden State Committee, the garden at Buda was listed in Category 1 and described as having "retained that very elusive character observed in photographs of nineteenth century gardens". Use of the term "elusive character" is perhaps even more apt than at first realized, for this garden gains its impact from an overall impression rather than from well preserved detail. Work on site and careful analysis of all available photographic and documentary evidence is pointing up the fact that much of this garden has been altered in comparatively recent times, or has changed its nature through lack of adequate maintenance. A perfect example is the great cypress hedge originally planted and kept trimmed as a low-key architectural element set down in a hollow. It seems that it was gradually "let go" after the death of Ernest Leviny, and it has become so vast that it blocks out the important planned vista from the front of the house. Much of the edging has been moved, badly reconstructed, or simply overwhelmed by rising beds which are totally root bound and top filled so that they are now 150 to 300 mm above their original levels. Important alignments have been lost along the way so that the sense of much of the original plan is only again becoming evident during the restoration programme. Obviously, this is a late stage to find such details, but funds have always been scarce for such luxuries as detailed research. Clive Winmill makes the following comment in his report:

"The garden was inherited by the committee in a **degrading** state — forcibly noted by the panel of experts who twice viewed

it at that time. The problems were **deep seated** and arose from unavoidable circumstances: for a **decade or more** an ageing lady owner and part-time jobbing gardener had not the faintest chance of keeping the natural **atrophy** at bay”.

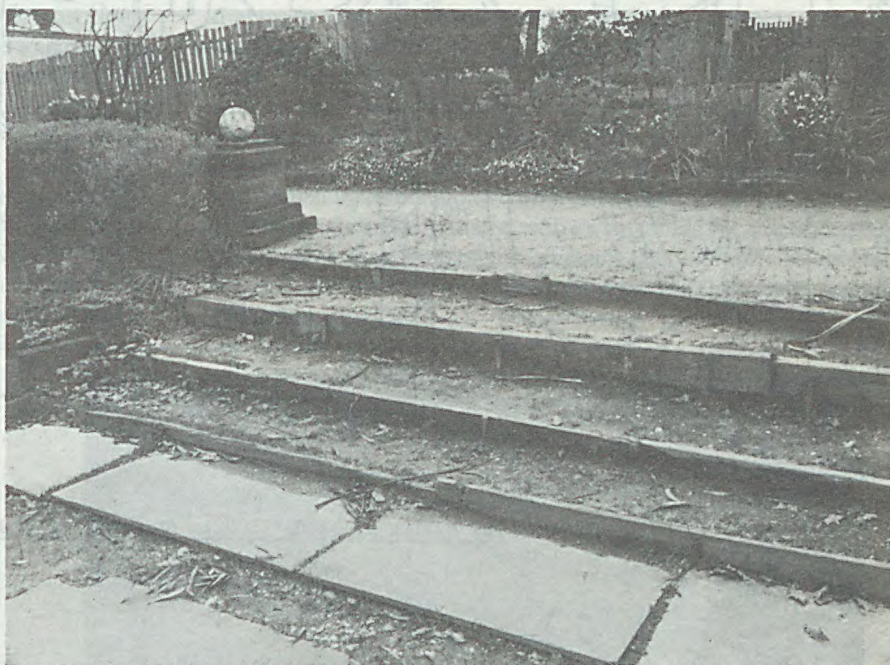
While certain sections of the garden at Buda are now at that rather messy midpoint common to any restoration scheme, the well planned and well executed programme is laying the necessary foundations for the garden's survival as an important public amenity. A display of photographs and documentation is planned for the delightful garden pavillion. This typically ornated structure served for many years as a tennis pavillion; the tennis court, however, was made into a formal garden by Miss Dorothy Leviny in 1918, an inspiration most likely born out of books on the work of Gertrude Jekyll and the so-called Surrey School.

The Buda collection is richly endowed with photographs, many the product of Miss Kate Leviny's interest in photography. One

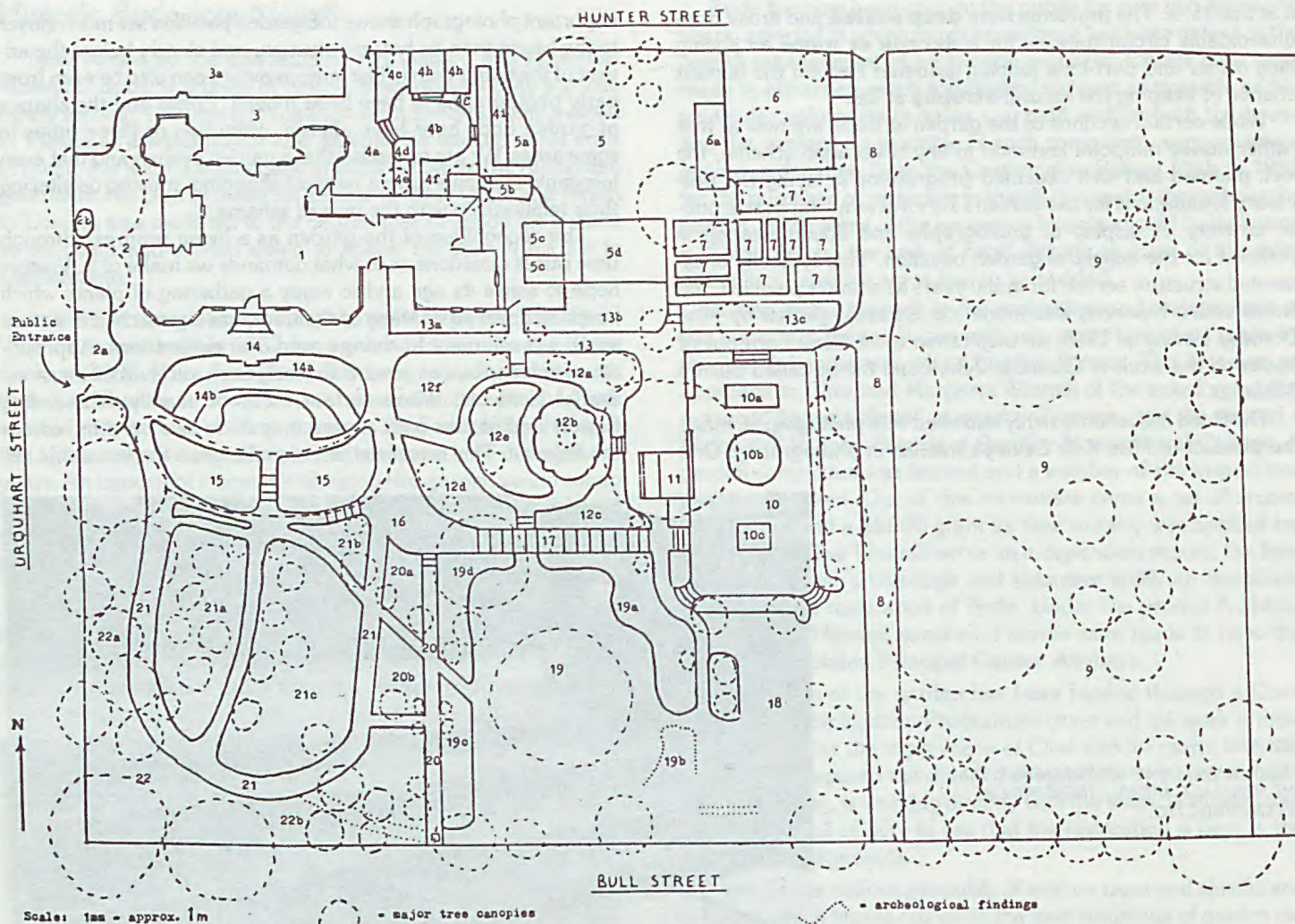
important photograph shows the garden pavillion set much closer to the house than its present position, and clearly before the advent of the tennis court. The famous aviary can also be seen from early photographs to have been moved. Edges and the shapes of garden beds have been altered, often two or three times in some areas. We are reminded that a garden evolves and that even inorganic elements have a habit of changing, moving or altering their relationship with the overall scheme.

This recognition of the garden as a living progress through time raises questions as to what demands we make of it. Visitors hope to sense its age and to enjoy a gathering of plants which bespeak times past. Many of the trees, having reached a mature scale, will seem not to change even over generations. Appropriate maintenance can ensure the long-term survival of these essential elements. When certain bulbs or readily self-seeding flowers and shrubs gain ascendancy there is a need to redress the balance. This is restoration, to make good the inevitable im-

RIGHT:
BADLY MAINTAINED STEPS LEADING TO
THE FORMAL GARDEN : THESE WILL BE
RECONSTRUCTED.



LEFT:
PLANTS HAVE BEEN TEMPORARILY
REMOVED AND EDGES RESET : NOTE BAD
EROSION FROM BREAKDOWN OF
DRAINAGE SYSTEMS.



THE GARDEN AT 'BUDA'. PLAN OF EXISTING AT MAY 1984.

NUMERICAL REFERENCE KEY

- | | | |
|------------------------|----------------------------|--------------------------------|
| 1. <u>House</u> | 7. <u>Vegetable Garden</u> | 15. <u>Great Cypress Hedge</u> |
| 2. <u>West Walk</u> | 8. <u>Service Drive</u> | 16. <u>Lookout</u> |
| a) Entrance border | 9. <u>Parkland</u> | 17. <u>Pergola</u> |
| b) Cactus Rondel | 10. <u>Formal Garden</u> | 18. <u>Wasteland</u> |
| 3. <u>Studio Walk</u> | a) Pool | 19. <u>Lawn</u> |
| a) Studio border | b) Round bed | a) North-east border |
| 4. <u>Courtyard</u> | c) Sundial | b) South-east border |
| a) Lower court | 11. <u>Pavilion</u> | - archeological evidence only |
| b) Upper court | 12. <u>Pavilion Garden</u> | c) South-west border |
| c) Gate border | a) North-east border | d) North-west border |
| d) Aviary | b) Oval bed | 20. <u>Miss Hilda's Walk</u> |
| e) Aviary border | c) South-east border | a) North border |
| f) South-east border | d) South-west border | b) Centre border |
| g) North-east border | e) Crescent bed | 21. <u>Carriage Circle</u> |
| h) Garages | f) North-west border | a) East bed |
| i) East border | 13. <u>Main Axis</u> | b) Hill triangle |
| 5. <u>Service Lawn</u> | a) West border | c) West bed |
| a) West border | b) Centre border | 22. <u>South-West Border</u> |
| b) Herb patch | c) East border | a) Urquhart Street side |
| c) Garden sheds | 14. <u>Forecourt</u> | b) Bull Street side |
| d) Open storage | a) Front border | |
| 6. <u>Poultry Run</u> | b) 'The Amphitheatre' | |
| a) Hen-houses | | |

balance caused through neglect. As Clive Winmill comments in his report: "There is a dangerous tendency to view a garden as being quite sufficient so long as plenty of plants and flowers can be seen, and as being a 'state of nature' which is roughly self-managing — with a bit of lawn mowing and leaf sweeping". It is rather, as he puts it, that "a garden is an art form involving not only botanic colour, but visual and physical structure; it is a domain of science, involving not only botanic but also agricultural findings, method and research; it is not a "state of nature" but a human artifice, needing human conservation — otherwise it **does** become a state of nature and goes through a destruct cycle, reverts to the wild and is no longer a garden".

Seedling trees and shrubs have generally been removed or marked for removal as part of the restoration programme. Some have been replanted as screening in less formal sections of the boundary. Paths, edging, drains and steps are being repaired, reset or completely reconstructed, depending on their condition. Work on new drainage pipes and repairs to sections of the virtually defunct old system has revealed a soil profile absolutely crammed with roots. Beds have risen over the years and with the addition of compost and mulch have buried or forced over the edgings. This either means a change to more adequate edging or a complete reworking of the bed.

Structures such as the long pergola (see plan) were held up by a few props and good wishes. These have all been rebuilt and will recapture old glories as roses and vines again flourish under improved conditions. Grant money has gone to provide a basic collection of proper tools, and repairs to various gardeners sheds. The creation of a nursery and enclosed composting area is

planned to further improve working facilities.

Identification of all surviving plants in the Buda garden has been under way for some years. In addition, separate records and a set of albums containing copies of all relevant photographs have been placed in the Garden Director's office. A small library of useful and essential books has also been established for use by the staff and volunteers. Any volunteers keen enough to give a day, or even half a day, per week are highly valued and given every direction and encouragement, so as to maximise their contribution.

One exciting plan for the garden's ongoing development is the creation of a formal rose garden, using all the available old-fashioned or classic roses, and in particular those associated with the development of gardening in this part of Victoria. The new management team is formulating proposals to focus the region's reputation for important specialist nurseries into an annual garden festival.

While many readers will have visited Buda, it is to be hoped that many others will be inspired to see such an important garden even as it undergoes the important step of major restoration. There is much to be learned and much to be enjoyed. Delights such as the masses of spring bulbs, the grand Bunya Bunya Pine (*Araucaria bidwilli*), the beautiful Golden Rain Tree (*Koelreuteria paniculata*) and the whole host of old favourite perennials and shrubs will inspire anyone with a gardener's soul.

The single story mansion with its Italianate facade is also full of treasures. Castlemaine is a pleasant 120 kilometres from Melbourne and in a region of endless interest to those who wish to recapture times past.

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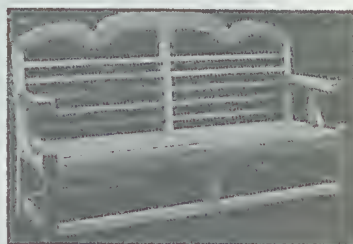
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All correspondence should be addressed to the Secretary.

Annual General Meeting

Notice is hereby given that the fourth Annual General Meeting of the Society will be held in the Prince Regent Room, Old Ballarat Village Motel, Ballarat, Victoria, at 6.00 pm on Saturday 10th November 1984.

Nominations for Executive Committee

Members are reminded that nominations for the Executive Committee, which should be accompanied by the names of proposer and seconder, must reach the Secretary by 20th October 1984 (date now extended from 30th September); nominations received after this date will be invalid.

Annual Conference, 1984

The Annual Conference, to be held in Ballarat on 9th, 10th and 11th November 1984, is now fully booked and it is regretted that no further applications to attend can be accepted.

Register of Research Workers

The Society is anxious to establish a register of all research currently being undertaken into historic gardens and landscapes, nineteenth century plant introductions, and allied fields. Anyone engaged in any type of research in these areas, whether on behalf of a government instrumentality, public institution or in a private capacity, is invited to send details to the Secretary.

State News

New South Wales and A.C.T.

On Sunday 9th September New South Wales members visited the Rhododendron Park at Mount Pleasant, near Wollongong and the Wollongong Botanic Gardens. A report on this visit will be included in the December Journal.

On Thursday 20th September the Society joined with the A.C.T. Branch of the Australian Institute of Landscape Architects and the School of Environmental Design, Canberra College of Advanced Education, in promoting a public lecture by Dr Peter Valder on "Discovering Australia's Flora"; this was combined with an exhibition of landscape design works by students.

On Sunday 30th September the Historic Houses Trust of N.S.W. invited members of the Society to visit the recently restored Elizabeth Farm, near Parramatta. Miss Oi Choong, land-

scape architect with the Government Architect's Branch, N.S.W. Department of Public Works, gave a talk on the restoration of the grounds of this important early colonial property. It is hoped to publish an article on this restoration in a forthcoming issue of the Journal.

A garden walk in the Bowral/Moss Vale region of the Southern Highlands will take place on Sunday 28th October. Gardens to be visited include Retford Park at Bowral, Whitley (1882) and Newbury Farm (1830) at Sutton Forest, Invergowrie at Exeter and also a delightful small garden — a plantsman's dream — at Exeter.

Members who would like to spend the week-end in the Southern Highlands will also have the opportunity of visiting Kenner-ton Green (home of Sir John and Lady Pagan) and Moidart (home of Mr and Mrs D. Burns), as well as a number of small specialist nurseries in the area, on the Saturday afternoon, and of attending a lecture in the evening, given by Mr Richard Ratcliffe, on "English Influences on early Australian Gardens". Full details of this week-end are being circulated to all N.S.W. and A.C.T. members.

Western Australia

On Sunday 14th October Mrs Oline Richards will be giving a talk on historic gardens to the Friends of the Claremont Museum, at the Claremont Museum, starting at 5.00 pm.

South Australia

At a meeting of the recently formed South Australian Branch of the Society, held in August, it was decided that the Branch should adopt a long-term programme of raising members' awareness of the historical value, uses and sites of the Adelaide Parklands. A further meeting is to be held on 16th October to introduce some general information about the Parklands; this meeting will be conducted by Rodney Beames and Dr John Brine.



THE RHODODENDRON PARK, WOLLONGONG
(photo: Pam Harrison)

Rhododendrons, Section Vireya — Old and New

by J. Clyde Smith

Until recently the only three readily distinguishable groups of rhododendrons grown in Australian gardens were the evergreen azaleas, familiar on the east coast in particular where warm winters encouraged them; the deciduous azaleas that could not live without a colder winter; and the "classic" rhododendrons of the Asiatic mountains so long associated with Great Britain. In truth, "rhododendrons" always seems to bring a mental picture of huge evergreen shrubs covered with the most impressive blossom, growing in the spacious grounds of a stately home.

But the genus is widespread and numerous, some 900 or more species have been found (the number increases as new species are still being found and decreases as earlier finds may be reclassified) and the azaleas and the Asiatic rhododendrons are really but a small part of the whole genus, although they form the bulk of the plants being grown in Australia. Most of these originated in China and the great mountain ranges north of Burma and India, while a few have come from the U.S.A. and have been used to produce some extremely cold-resistant hybrids that will grow in areas of Europe and America too cold for any other evergreen flowering shrubs. There are some attempts being made here, in Japan and in California to breed heat-resistant hybrids but a cold winter still seems necessary for most of these.

For those who live in temperate climates there is now the promise of a fourth group of rhododendrons — the Vireyas. These make up almost one third of the total species but until very recent years have not been available in Australia, nor indeed anywhere in the world, yet at one time they were a well-publicised, although restricted group in England.

The rhododendrons in the Section Vireya occur very close to home; about half of them are to be found in New Guinea, the remainder grow in the Phillipines, Borneo, Malaysia, Indonesia and in Australia. Although they are tropical plants most of them grow in the mountains from 1500 to 4000 metres above sea level; a few descend to the mangroves. In Australia our solitary species, *R. lochae*, is found only from about 1000 metres above sea level on the coastal mountains of North Queensland. The Vireyas grow as small terrestrial shrubs but may also occur as epiphytes in the forests, where the brilliance of their flowers makes their presence known. Botanically they are distinguished by their scaly leaves and the long "wings" on their seeds; in the garden they do not look like the usual rhododendron or azalea, their growth habit and foliage are distinctly different, but what is the most striking difference is the clarity and brilliance of their flowers.

With the exception of *R. lochae* these were not grown in Australia until the late 1950s, but the English cultivation of some few of these species was intensive indeed, from the time the Veitch brothers of Chelsea first flowered *R. jasminiflorum* from Malacca in 1849. *R. jasminiflorum* has long tubular flowers, highly scented, with red anthers; although small these are dainty and appealing. Almost simultaneously came *R. javanicum*, with funnel shaped orange flowers, and its varieties which may be red or yellow; then *R. brookeanum*, named after the Rajah of Sarawak, a beautiful orange-pink with white or cream centred flowers, and its varieties too, with yellow or brick-red flowers.

A little later the collectors for the Veitchs brought back *R. malayanum* (red), *R. longiflorum* (crimson to pink) and *R. multicolor*



Shrublands . .

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(cream to yellow, rose or fiery red), and from these six species and their varieties Messrs Veitch produced several hundred named hybrids between 1863 and the late 1890s. In England these were all hothouse plants, intolerant of frost. They probably reached the peak of their success in 1897 when a tray of cut blooms was exhibited at every fortnightly meeting of the Royal Horticultural Society throughout the year.

If the practices of naming these plants at that time followed those recognised to-day, then a look at the list of their names would indicate that they must certainly have had royal approval. The list is headed by "Queen Victoria" and includes (although not in chronological order) "King Edward VII", the Crown Prince of Germany "Prince Leopold", and then some six Princesses and four Duchesses before descending to lesser mortals and purely descriptive names.

Distinguished as they may have been they do not seem to have survived for long in the twentieth century; fashions change in gardening as in other matters and there had been a huge influx of other most attractive species that would flower outdoors; the final blow must have been the stringencies of the first world war. Few hothouse plants could be justified then nor in the following years of the Depression, and interest in these Vireyas, or Malaysian rhododendrons as they were then known, was finally lost.

A few survived in England, some were taken by the Washington D.C. Arboretum, and one at least reached Australia after World War II. This was "Triumphans", a cross between "Duchess of Edinburgh" (*R. longiflorum* x *R. brookeanum* var *gracile*) and *R. javanicum*, that had been sent, unasked, to an Australian orchid collector with a batch of orchids, as a hothouse plant. It was a sick plant when the late Don Stanton purchased it, but rescued from the heat, nursed with great care and eventually placed in the ground in 1963 in Wollongong, "Triumphans" became one of the most floriferous of all Don's collection of Vireyas. It is a blazing red that stands full exposure, as was found when it grew through the laths above it.

Since then there has been an influx of Vireya rhododendrons, and a wide range of species and hybrids are under cultivation in the trade as well as in private gardens. Many of these must still be regarded as under trial, they are new indeed to our gardens but their attraction is such that they will surely become one of our more novel and most interesting garden subjects.

Most of the work of their introduction has been done by members of the Australian Rhododendron Society, and it is surprising to read in their journal of May 1959 that "none of the New Guinea species have been cultivated anywhere in Australia". How-



ABOVE: *R. LAETUM* X *R. JAVANICUM*, SHOWING TYPICAL PLANT FORM OF THE VIREYAS.



ABOVE: *R. LAETUM* X (*R. LOCHAE* X *R. MACGREGORIAE*)

BELOW: PENRICE - A *R. LOCHAE* X *R. AURIGERANUM* HYBRID



ever it is now believed that some seed came to Australia in 1955 or soon after, to private collectors.

Long before this a *Vireya rhododendron* had been found and collected by Mr W.A. Sayer on Mt. Bellenden Ker, North Queensland, in 1886. Specimens were sent to Baron von Mueller in Melbourne, who identified it as a *rhododendron* and named it *R. lochae*. While it must certainly have been grown in Australia there is little popular record of this; but we know at least that flowers of *R. lochae* from the garden of naturalist Mr Ivo C. Hammet were shown at meetings of the Field Naturalists Club of Victoria in January 1949 and reported in "Your Garden" magazine.

Overseas, in Holland, the Experimental Station at Boskoop was raising *Vireya* seedlings from 1955 and had imported cuttings from Borneo, the Philippines, Malaysia and New Guinea from 1960. By 1964 they had bloomed six species from New Guinea. From then on some of the species were self-pollinated there and the hybridizing of others commenced. In California the staff at Strybing Arboretum, San Francisco, were active from 1961, having acquired some of the Veitch hybrids from Washington D.C. From that period on *Vireya* seed and plant material were sent by a number of collectors from New Guinea and Malesia, and there was a friendly interchange of material, both species and hybrids, between these centres and the Botanic Gardens at Kew and Edinburgh, with Australian growers. The sixties were a period of initiation; as new species flowered they were self-pollinated and crossed with whatever other species was available, particularly with *R. lochae*, *R. laetum*, *R. christinae* and *R. macgregoriae*.

R. christinae had been sent to Australia by the Rev. Norman Cruttwell in 1960. It was grown by the late A.C. Bramley and small plants were made available to members of the Australian *Rhododendron* Society for a guinea each in May 1961, the first

time that any species other than *R. lochae* was available to more than a few people. To place this in historical perspective, television had been established in Australia five years earlier.

Other species were to follow quickly as communications developed in New Guinea and a number of people collected there, sending seed and cuttings to Australia and other countries. That the story of these travels is beyond the scope of this article does not reflect on the very interesting accounts that have been published, and that are, no doubt, still to come. New Guinea has many areas that have been barely touched upon.

As the species flowered, hybrids between them were made for various reasons, possibly just to see what would happen, but perhaps also to aim for the best of both worlds, to have hybrid vigour and free flowering habit together with the beauty of form and colour of the best of the species. While species may vary in colour and flower size within the one species, the better forms have a quality that distinguishes them from their hybrids, but they can be shy to flower here and less resistant to disease. As an example neither *R. lochae* nor *R. aurigeranum* can be expected to flower every year in Wollongong, but one of their selected hybrids — "Penrose" — will flower two or three times each year with larger flowers than either parent on a larger but more compact bush.



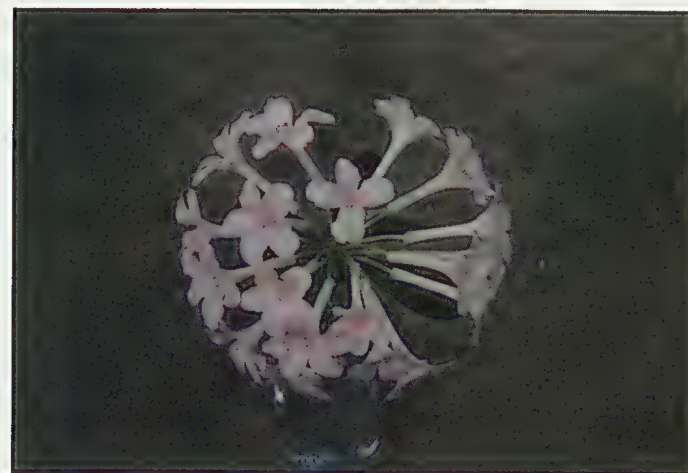
LEFT: TRIUMPHANS

By 1970 the garden potential of the Vireyas was still almost unexplored. They were regarded to a large extent as epiphytes, and the usual method of growing them was in containers or, in Victoria, where they were readily available, in tree fern logs. Melbourne growers had had losses from heavy frosts which discouraged planting them in the open, and supplies of plants were generally insufficient to justify taking any chances. To remedy this position, at least in Wollongong which was free of frost in most areas, Don Stanton supplied a number of small seedlings of different crosses to a few interested members of the Illawarra Branch of the Australian Rhododendron Society. Don had grown some Vireyas in leaf mould on the ground under shade and sheltered from high winds with considerable success, and wanted to extend this method.

With enough small plants to play with, risks could be taken and they were placed in various aspects in the ground in a few gardens. The results were encouraging, they grew at least as well as in containers, even though they were still treated with some consideration and placed in shaded places. Later it was found how much better they would fare in the maximum light possible, short of burning at midday on the occasional day of extreme heat. One experiment was to plant three groups of ten plants, each group of a different hybrid, at the upper garden of the Rhododendron Park at Mount Pleasant. Here they were underplanted with azaleas to cover the leggy growth that then seemed inevitable. The combination can be quite compatible, but care must be taken to choose very low growing azaleas; however with more experience it is now possible to have bushy plants of Vireyas by selection, by tip pruning and by giving ample light.

In growing any batch of seedlings some weaklings will appear that do not warrant further care, but most of the plants will be similar in form and flower. Flowers may not be seen for four to eight years on most hybrids unless semi-laboratory techniques of controlled temperature and lighting are available. It may be some two years after this for the outstanding plant of the grex to be established to determine whether it should be named and registered. Good form and reasonable resistance to pests and diseases are desirable as well as a good flower; fortunately propagation from cutting is rarely difficult with modern aids. It is understandable therefore that it was not until 1972 that the first

BELOW: *R. PLEIANTHUM*, A NEW GUINEA SPECIES FROM THE HIGHLANDS, SO NAMED BECAUSE OF ITS MANY FLOWERS



ABOVE: PENDANCE - A *R. CHRISTIANAE* X *R. JASMINIFLORUM* HYBRID

hybrid was registered, and that only five others were registered before 1980, from the New Guinea species.

Many fine plants, both hybrids and different forms of species, have now been named and others are under trial. The range extends from those that will look well in a hanging basket to the large leaved species that will grow to three metres; the colour range is from pure yellow through cherry red to white, but there are no blues or purples in the group. The flower shape is often tubular but may be bell shaped, and range in size from the tiny 5 to 6 mm flower of *R. anagalliflorum* to the huge 140 mm flower of *R. leucogigas*. Their leaves range in size similarly but the extremes are not very common; shapes vary from the narrow linear leaves of *R. stenophyllum* to the rotund leaves of *R. orbiculatum* and *R. blackii*, and in a number of species the new leaves are strikingly indumented.

The best of the garden varieties, mainly hybrids, are not hard to grow. Recently a large number were planted out in the Rhododendron Park at Mount Pleasant, near Wollongong. Here the ground was dug over, levelled and terraced because of the steep slopes, plants were placed as evergreen azaleas would have been and then mulched and watered. They will be given the same protection against insect pests (lacebug, thrips, etc) and disease, mainly powdery mildew, but poor drainage can lead to root rot. The soil here is of good texture, but has been leached over the years and some feeding has been found necessary. Slow release fertilizers at half rates have given good results in the past and heavy mulching is beneficial. Heavy pruning is best avoided by regular light trimming, once flowering commences this is easily done by cutting the flowers as soon as they are fully open and

before the bees can pollinate them. They will last indoors longer than many cut flowers.

One of the best and oldest of the species in cultivation is *R. jasminiflorum*, its small white long tubular flowers are scented but not spectacular. But it flowers regularly for long periods and is always a neat bush, very hardy and needing almost no attention. Its hybrid with *R. christianae* — "Pendance" — is much more spectacular, with a large truss of 12 to 15 flowers, also hardy but a little more open in shape.

R. macgregoriae is the commonest of all rhododendrons in Papua-New Guinea; the flowers are small and their colour is variable — yellow to red but usually yellow, or orange — but many of its hybrids have been raised here and they too are good garden plants.

Many more could be listed, the best place to see them at the moment being at the Rhododendron Park, but obtaining plants is not easy. The Illawarra Branch do sell some from their members' efforts but they are slow to develop and have not been raised in large numbers by the trade. Shrublands Nursery in Boronia, Victoria, specializes in them and a few other Victorian nurseries also raise them.

In all the *Vireya* rhododendrons are not only a new and exciting field for experiment and pleasure, they are to-day's garden history in the making.



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BOOK REVIEWS

The Cottage Garden Revived

by Trevor Nottle: published by Kangaroo Press 1984; recommended retail price \$14.95 (hard cover)

reviewed by Tim North

The author's name will be familiar to most readers of this Journal, for he is its most regular, and, I may add, its most obliging contributor; like all good plantmen he is generous in sharing his knowledge and experience with others.

Trevor is an enthusiast, and his enthusiasm is infectious; it is hard to read anything of his without feeling an urge to try for oneself. His aim in writing this book, as he states in his Introduction, is "to share with you my enthusiasm for collecting, growing and enjoying the plant survivors of the last one hundred and fifty years". From that point on you will be "hooked" and in all probability you will, as I did, read the book from cover to cover without putting it down. And having become "hooked" Trevor tells you three things will happen; firstly, you will be struck by "the ease with which you will be able to come to a decision about the style of your garden restoration"; secondly you will be "drawn slowly but certainly into a select group of gardeners... you will soon be comparing notes, exchanging plans and striking up new friendships". And thirdly will come "the realisation of the floral richness which existed in gardens in nineteenth century Colonial times".

This book is an excursion through that "floral richness"; it takes you through the front garden, the side gardens, the back yard (which includes the vegetable garden), on to the verandah and even into the woodshed. But this is no academic excursion, it is a highly practical guide to restoring — or re-creating — a cottage garden.

The author takes a most sensible attitude to the vexed question of "authenticity". He says "if you accept my argument that nineteenth century gardeners enthusiastically cultivated the latest improvements, then you may possibly feel able to dispense with using only plants from the period and use some modern ones as well". But he adds a warning — consider the form of the particular flower before you buy; roses and camellias are two notable examples of flowers that have been changed in form considerably by modern breeders, and modern cultivars would be out of place in the old-fashioned garden.

He accepts, too, the fact that the chicken run, the well and the stables in the back yard have now been largely replaced by the barbecue, the patio and the swimming pool. The front and side gardens, he says, "need to create the impression of a cottage or villa garden so a slight deception may find acceptance in the modern eye. The important thing is to continue the impression by the use of a suitable variety of plants arranged in a similar fashion to what has gone before, and to admit the modern intrusions without trying to hide them". It is refreshing to read such sensible and practical advice as a change from the pretentious nonsense so often written about garden restoration.

A number of appendices give lists of trees, shrubs and herbs common in nineteenth century gardens, of camellia cultivars, roses, paeonies, "favourite" shrubs, palms and cycads, citrus varieties and pelargoniums, as well as some sources of old-fashioned plants (invaluable information) and useful reading.

The colour photographs illustrate the text admirably, and there are a number of reproductions of engravings from nineteenth century Australian and English gardening papers and of pages from old nursery catalogues.

Comparisons are often unfair, and it would be quite unfair to compare this book with Peter Cuffley's excellent "Cottage Gardens in Australia" published last year. While Peter's book is a comprehensive treatise on the nature and structure of old cottage gardens, Trevor's is essentially a practical guide to recapturing the "feel" of such a garden by choosing wisely from amongst the wealth of beautiful plants that were grown in them, and which — if you are prepared to search — are still available to-day. These two fine books should stand side by side on every garden lover's bookshelf.

Australian Natives for your Garden

by Penny and John Rose: published by Kangaroo Press 1984; recommended retail price \$8.95 (soft cover)

Growing Chrysanthemums

by Bruce Skeen: published by Kangaroo Press 1984; recommended retail price \$9.95 (soft cover)
reviewed by Tim North

These are two new titles in Kangaroo Press' highly successful "Growing" series.

There may be some who think that we must have reached saturation point in books dealing with native plants, but one written by people with the long and wide experience of collecting native plants and of growing them on a commercial scale as Penny and John Rose (they are proprietors of Sydney Wildflower Nurseries) deserves comment.

This book is, to all intents and purposes, an alphabetical and descriptive list of recommended plants. Apart from that there are four pages only on planning and preparing a native garden, so it can only be judged as a work of reference. Covering some 150 different genera it contains a remarkable amount of information for a small book, and at the extremely modest price of \$8.95 it has to represent excellent value. Furthermore there are 192 colour photographs which, although of reasonably good quality and certainly useful, are rather too small for positive identifications to be made in many cases.

Exhibition chrysanthemums were one of my earliest gardening interests, nearly forty years ago, and while those interests have changed in the intervening years I was pleased to renew, in Bruce Skeen's book, some old acquaintances like Mark Woolman, Jessie Habgood and the Shoemith clan. There are, no doubt, a great many people with a special interest in chrysanthemums, or who would like to take up growing them as a hobby; this is a book they will need, covering as it does such subjects as growing for show, producing better cut flowers, raising new cultivars, and the effects of daylength, light and temperature. The author is Secretary of the Chrysanthemum Society of N.S.W. and of the Australian Chrysanthemum Council, so he writes with authority. It is not, however, a book that will necessarily appeal, or have much value for, the non-specialist.

Growing Irises

by Graeme Grosvenor; published by Kangaroo Press 1984; recommended retail price \$9.95 (soft back)
reviewed by Trevor Nottle

In his cover notes for this book the author introduces the book as a "gardener's handbook" and describes himself as a "gardener with a great deal of theoretical knowledge and practical experience".

This undoubtedly explains why the book contains very comprehensive cultural notes and instructions for amateur breeders, and an excellent selection of colour photographs of the latest Australian and foreign varieties. The inclusion of the products of local breeders is refreshing in a field of horticulture dominated by the Americans. Another refreshing note is the inclusion of many varieties of iris outside the usual run of Tall, Medium and Dwarf Bearded, including Siberian iris, Spurias, Japanese iris, Louisianas and species.

All this adds up to a very informative and wide ranging introduction to a fine group of plants, which deserve a much wider appreciation. Even better, the book is written for Australian conditions.

For keen "irisarians", as they are known, there is also much useful knowledge passed on by the author, who is an experienced exhibitor and international judge. Amateur iris growers could be confident in following his techniques of preparation and presentation so that "First Prize" certificates will soon follow.

But what of the non-irisarians — the flower gardener, the plantsman, the home gardener and the garden designer? For beginner gardeners there is plenty of practical advice and a wealth of illustrations to guide choices. For experienced gardeners there is less inspiration in the text, with only brief notes on landscaping opportunities with iris, an area which could have been built on considerably. There are a good many illustrations in which the background gives a few ideas about possible plantings in conjunction with water-side gardens, paved areas and borders. What a pity the author didn't realise that such obvious uses to him would need expanding in the text in the same way that exhibiting and breeding were treated. I fully realize the limits imposed by the publisher on the number of pages and the layout; even so a few more paragraphs on using iris in gardens would have been appreciated by myself, and I suspect many other keen gardeners. As it is, plantsmen and others will be intrigued by the fine photographs of such lovely flowers as *I. laevigata albopurpurea* "Colchesterensis" and "Monstrosa", the Spuria iris, the Japanese iris, the Siberians and other species and will try to discover ways of having them in their gardens.

A good introduction to the iris family, and well worth having on any gardener's bookshelf.

My Favourite Gardening Book

In the second of this series Alice Jeffery, who gardens in the Melbourne suburb of Kew, writes about one of her favourite books.

The Editor asks for "my favourite gardening book", an impossible task, for so much depends on the need and the mood. Always there will be a background of Gertrude Jekyll, Christopher Lloyd, Stuart Thomas, Marjery Fish and so many more, but a book which has certainly won my heart is "Green Thoughts", by Eleanor Perenyi, a book to come back to time and again, a book to read in bed — that's an accolade in itself. She writes of the garden she has had for thirty years, "I garden because I can't help myself, I invariably let optimism get the better of judgment. As I get older I tire more easily and shrink from tasks that I performed with alacrity even a year ago; if I don't take steps to halt the proliferation of plants in my garden, go on a gardener's diet, I will be facing an unmanageable situation".

Many of us will share the frustration of finding a place for a plant when reason tells us no space exists.

This is a contentious book in many cases, with strongly held and voiced opinions and prejudices, with many of which I disagree. To give an example, her admiration for super-sized dahlias of which she says "mine are not discreet little single dahlias, some are as blowsy as Renoir's girls ... but to me they are sumptuous, not vulgar. I love their colours and their willingness to bloom. I do like big flowers when they are beautiful".

Then there is the strong dislike of borders which are wider that can be weeded from a kneeling position "on no account must you need to wade into them". A curious ruling, which automatically disqualifies the great swathes of perennial borders which can add so much beauty and character to a garden.

But there are shared ideas — the need for always trying to grow the best form of its kind available, the plant that rates a good home because of personal significance, by association or provenance. The difficulty of giving adequate and acceptable support to tall perennials so that each group does not have a "bundled together" look with a series of "waist-lines" where strings gather the wayward stems to the central stake. This must be one of the major difficulties all gardeners have experienced and tried to cope with as best they may; it is rare to see a garden where plants are untrammelled but each supporting the other with no obvious coercion. A dislike of the over-use of sprays in the garden is another sharing — apart from anything else it must be the most boring job imaginable. Mrs Perenyi also emphasises the absolute necessity of having a generous and continuing supply of compost, which improves the soil and heartens the plant, doing so much to reduce the need for spraying. She says "I spend \$30 a year on fertilizer and not a cent on pesticides".

Her garden is in Connecticut, U.S.A., and that highlights the fact that Australian gardeners should be grateful for our climate; you read how much time and care is necessary to carry her plants through the bitter winter.

"Green Thoughts" is written by a practical gardener; hers is not a large garden and she has only occasional help. As you read this book there will be many points with which you will disagree, but it is written with zest and a willingness to share her experiences, so that you wish you could talk of them with her.

I know if I were within travelling distance and heard that her garden would be open I would turn up bright and early, hoping that its owner would be just inside the gate.

Alice Jeffery.

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Early Botanical Exploration in Western Australia and its effects in Europe

by Kathleen Napier

Most of the botanists and collectors mentioned in this article did not limit their travels to Western Australia; many of them were also active in the east to an equal or lesser extent. As a result the effects that I shall be referring to apply to Australian flora in general. And the effects were quite exciting.

But let us start with exploration going only as far as 1850. Many of the great botanical explorations of the world took place in the late 18th and 19th centuries, often as part of a general exploration program as in the case of the Flinders expedition, and were financed, for instance, by the rulers of England, France and Austria for the benefit of their national gardens and the study of botany. At this time among the leading botanists were Jussieu and de Candolle in France, Hooker and Bentham in England and Endlicher in Austria, all of whom played an important part in classifying Australian plants.

Interest in exotic plants was not confined to the rulers and scientists; the wealthy vied with one another in establishing greenhouses full of unusual blooms from both hemispheres. The enthusiasm for Australian plants followed, fortunately, an earlier craze for heaths from the Cape — fortunately because methods and soils used for the South African plants were adapted for the Australian.

The honour of being the first botanical collector on Western Australian shores goes to Dampier, who visited our north-west coast, near Cape Leveque in 1699 and returned with collections of dried plants to England. Impressed as he was with the number of blue flowers in the area, it is fitting that he should be commemorated in the *Dampiera*. What remains of his herbarium is now at Oxford University.

After Dampier a hundred years passed before the next visit of botanical significance. In 1791 Vancouver sailed into King George Sound, in which the present Albany is sited, with the botanist Menzies on board, during an expedition to the South Seas and North America. Menzies collection of dried plants was later classified by Robert Brown and his name is to be found in *Banksia menziesii* and the rabbit orchid, *Caladenia menziesii*.

One year later, in 1792, the *Esperance* area saw the arrival of d'Entrecasteaux, with Labillardiere as botanist. As is well known, the main aim of the voyage was to discover the fate of La Perouse, but at the same time d'Entrecasteaux was instructed to carry out a scientific mission. Labillardiere made a rich collection of plants which went to the Jardin des Plantes — the Paris Garden and Herbarium — and to the famous garden of Josephine Bonaparte at Malmaison. Labillardiere was the first to name the Kangaroo Paw, in this case the *Anigozanthus rufus*. The Billardieras bear his name. He published his findings in 1804-06.

In April 1802 two very important expeditions met off South Australia in Encounter Bay — these were, of course, the expeditions led by Flinders, with the botanist Robert Brown, and the Baudin expedition with Leschenault de la Tour as botanist.

The Baudin expedition had arrived in Australia earlier. A well-equipped scientific expedition, with perhaps other less explicitly defined political aims, it had left France with a very high ratio of scientists to crew. A few years earlier, for the Austrian Hapsburgs, Baudin had very successfully commanded an expedition

to collect plants and animals for the famous gardens and zoo, Schönbrunn, but on this occasion he found difficulty in managing a group of professional scientists. This possibly explains the little time he allowed them for investigations on land. Even so, as a result of the visit, hundreds of specimens, both live and dried, were collected for the Jardin des Plantes, the main collecting spots being at King George Sound, Cape Naturaliste, Swan River and Shark Bay. Our *Lechenaultias* are named after the botanist who later spent many years as a naturalist in Java and India. The hundreds of drawings that he made of our plants appear to have been lost.

King George Sound was also explored by Robert Brown. The Flinders expedition included the gardener, Peter Good, from Kew Gardens, and the outstanding botanical artist, Ferdinand Bauer. As a result of their efforts a large collection of plants was sent to Kew and a herbarium assembled by Robert Brown. In 1810 he published his classification of Australian plants — one volume only, but sold only 26 out of 250 copies. Bauer, who did all the engraving and colouring of the plates himself was equally unfortunate. As a result there are more than 2000 of Bauer's unpublished paintings of Australian plants in Vienna. Miss Phyllis Edwards is at present working on a transcription of Peter Good's diary (Ed.note: this, of course, has since been published).

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The lists of plants growing successfully are too long for presentation, but those illustrated include the following:

Chorizema, Mirbelia, Hovea, Gompholobium, Templetonia, Platyllobium, Brachysema, Hardenbergia, Billardiera, Acacia, Melaleuca, Eucalyptus, Dryandra, Helipterum, Gnaphalium, Prostanthera, Banksia, Hibbertia, Tetratheca, Kennedia, Lechenaultia, Calothamnus, Anigozanthus, Pimelea.

What was the secret of this early success with our plants, some of which still present difficulties to cultivators? First, the gardeners were obviously highly skilled. Next they had recently been practising in growing South African heaths and often recommended a similar sandy acid soil for our plants.

What of the nurseries themselves? This is another interesting study, incompletely documented, as in most cases the nurserymen apparently destroyed their business documents. Much can be learnt, however, from a detailed study of the horticultural journals.

The Kings Road, Chelsea, in the first half of the 19th century, housed several major nurseries, including Knights, which specialized in exotics. Knight had trained under George Hibbert, after whom *Hibbertia* was named, and who had specialized in plants from the Cape of Good Hope.

Another famous nursery specializing in Australian plants was Loddiges at Hackney. Not only did Loddiges supply Australian plants to English and European gardens, some of the seeds being obtained from Drummond, it also trained the first Government Botanist in South Australia, John Bailey, who left the firm in 1839 for Adelaide. He was the forebear of the well-known family of botanists, including F.M. Bailey.

Loddiges published the "Botanical Register", and among their illustrators were members of the Cooke family, one of whom, Edward William, became a successful marine painter; another was the young Thomas Shotter Boys. Edward William Cooke married a Loddige and was also connected by marriage to the Ward who designed the Wardian cases for transporting live plants over long distances and through arduous changes of climate, introduced on the Australian run in the late 1830s.

It is illuminating to read the recommendations of John Loudon, famous landscape gardener and influential publisher of the "Gardener's Magazine", on the requirements necessary for a gardener. While they might seem extremely demanding they are a pointer to the state of horticulture prevailing at the time. Loudon's recommendations appeared in 1826 in the first volume of his "Gardener's Magazine", 4000 copies of which were sold.

"To get a good place as a gentleman's gardener . . . he must not only be a good practical botanist but possess some knowledge of chemistry, mechanics and even of the principles of taste . . . drawing, at least of ground plans, is indispensable; and for a first rate situation, sketching landscape and some knowledge of French, equally so. A knowledge of the rudiments of Latin and Greek, so far as to be able to found out the meaning of nouns in a Greco-English dictionary, is pre-included in some knowledge of scientific botany. Every gardener, in short, who can now be considered worthy of the name must understand the principles of English composition and be capable, at the desire of his master, or of his own proper motion, to write a paper on his art, fit to be introduced in the Horticultural Society's Transactions, or in the Gardener's Magazine. The gardener who has no ambition to appear as a writer in one or both of these works must be a heartless mass of subsoil".

Loudon's campaign produced immediate results. One forms the impression, however, that it was not always because of en-



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lightened views that wealthy landowners responded so favourably.

As can be seen, it is still only the coastal areas that are becoming known. The coastline not mapped by Flinders was filled in by Captain Phillip Parker King during his voyages of 1818, 1820 and 1821. The young John Septimus Roe, later Surveyor-General of Western Australia, and keenly interested in botany, and the New South Wales Government Botanist, Allan Cunningham, participated in these expeditions, during which many plants both along the south and the north-west coasts and in the Kimberley were collected. Seeds and specimens were sent to Kew.

The Kew Inwards book indicates that Captain King presented the garden with one good plant of *Cephalotus follicularis*, the Albany Pitcher Plant, and one or two doubtful ones, with some bog moss and earth from King George Sound. In view of the arduous travelling conditions of the time, it seems remarkable that even one survived.

A second Australian trip was made in 1818 by Freycinet, a member of the Baudin expedition. He collected in the Shark Bay area. Then in 1826 Dumont d'Urville visited King George Sound, gathering a large collection for Paris.

So far all the 18th and 19th century visitors had been official. In 1823-25 and 1828-29 William Baxter, formerly gardener to the Comtesse de Vandes, who had a famous garden in London specializing in exotics, was collecting in King George Sound for Mr Henchman and for the Clapton Nursery. It was during this visit that he sent seeds of *Lechenaultia formosa* to London.

In 1831 James Backhouse, the Quaker, visited King George Sound during his Australian tour, the purpose of which was partly religious and partly to collect seeds for his family's well-established nursery in York.

Two years later, December 1833 to January 1834, Karl von Hügel explored the Swan River area and King George's Sound during his five year round the world natural history trip, planned to escape the disappointment of losing his intended bride to the great Metternich. As well as dried specimens, von Hügel collected seeds for his garden in Vienna which later became renowned for its landscaping and its range of exotics.

A later European visitor was Ludwig Preiss (1838-42), who often botanised with James Drummond in the south-west of the State and as far east as Cunerdin. Preiss was a personal friend of von Müller and is said to have influenced him to come to Aus-

Early Botanical Exploration (continued)

tralia, initially for his sister's health. An account of the plants he collected was edited by Lehmann.

What of the settlers themselves? Best known is James Drummond, appointed the first Government Botanist in 1829. He travelled extensively in the south-west, and as far north as the Murchison River, collecting seeds for despatch to Kew Gardens, nurseries and wealthy private garden lovers. His activities have been fully documented by Mrs Rica Erickson in "The Drummonds of Hawthornden". Then there was Dr Collie, a good botanist, who explored the Albany, Leeuwin and Fremantle areas in the early days of the colony. Some of the plants he collected are in the herbarium at Oxford. A collector rather than an explorer, Georgina Molloy gathered seeds in the Augusta area and sent them through Captain James Mangles to his brother Robert, for his garden in Wiltshire. Her contribution to making our plants better known overseas has been revealed by Lady Hasluck in "Portrait with Background". Earlier, Governor Stirling and his wife, the former Ellen Mangles, cousin of James Mangles, had sent seeds to friends and relatives.

What of the effects in Britain and Europe of all these explorations and collecting expeditions? They were of two kinds, botanical and horticultural.

As Europe in the very early 19th century was in the throes of the Napoleonic Wars, one would have expected the hostility between the nations to extend to the realm of science. Fortunately the influence of Sir Joseph Banks ensured a continual exchange of ideas even between English scientists and their European counterparts. This meant also a continued exchange of dried plants between the various herbaria. So much material was pouring in from botanical collectors from many parts of the world, however, that there were long delays between reception and classification. In fact, even to-day not all the earlier collections have been fully processed. Even so, some major botanical works on our flora were produced by de Candolle, Brown, Endlicher, Bentham and Hooker and Lehmann before 1850.

What is most interesting for us, I think, is what happened to the seeds and live plants that were destined for botanic gardens, nurseries and wealthy garden lovers. It is surprising to see the number of Australian plants that were grown successfully in Europe from the end of the 18th century to the middle of the 19th century. Here we do not have to rely on unsubstantiated claims,

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Garden Tour of the Eastern United States

"The Australian Garden Journal" is planning a garden tour of the eastern United States for June/July 1985. The itinerary has still to be finalised, but is expected to include:

Old Westbury Gardens, New York
New York Botanic Gardens
Longwood Gardens, Pennsylvania
Meadowbrook Farm, Pennsylvania
Morris Arboretum, Pennsylvania
Bartram's Garden, Pennsylvania
Winterthur Museum and Garden, Delaware
United States National Arboretum, Washington DC
Mount Vernon, Virginia
Woodlawn Plantation, Virginia
River Farm (Headquarters of the American Horticultural Society), Virginia
Colonial Williamsburg, Virginia

A number of selected private gardens will also be included. Further details in our December issue. In the meantime anyone who is interested please write to **PO Box 588, Bowral, NSW 2576** or telephone: (048) 61-1884.

STOP PRESS:

We have just heard from Mrs Eleanor Perenyi, author of 'Green Thoughts' (see page 18) who will be delighted to welcome our party to her garden in Stonington, Connecticut.

as the spate of botanical and horticultural journals, produced mainly by nurseries, included copious illustrations of flowers that had bloomed in either nurseries or in private gardens. There was competition for the honour of producing the first flowering plant of a species, witness Robert Barclay of Dorking, who kept a botanical painter on his estate. In a letter to the editor of "The Botanical Journal", he mentioned his haste to send along a painting for inclusion in the journal for fear of a rival garden outdistancing him.

Competition was keen throughout Britain and the Continent. Awards at flower shows were published in the national press as well as in the horticultural journals. Owners of gardens might have the honour of being the first to bloom a new exotic, with the chance of more recently discovered plants being named after them. The nurseries, in addition, could win the prize of foreign trade in an era of lavish ducal gardens.

It was not only the nurseries and the private gardens that featured in the journals; the achievements of the various botanic gardens were also indicated therein. The Director of the Royal Botanic Gardens in Berlin was one of the editors of the "Allgemeine Gartenzeitung" and here we can find lists of the Australian plants flowering each month.

If we take the *Lechenaultias* and trace some of their adventures in Britain and Europe, a clearer picture of the pattern of development might be obtained. *Lechenaultia formosa* was the first species known in Europe live, although the eastern states *L. filiformis* had been drawn and published by Bauer in 1813 and dried specimens of others had reached some of the herbaria, including Paris. His drawing of *L. formosa* had only fairly recently been published.

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Seeds of *L. formosa* were first sent to England by Baxter from Lucky Bay in 1823. In 1825 three of the leading English journals featured it, the first being Curtis' "Botanical Magazine", the drawing being made from a plant supplied by Robert Barclay of Dorking. Barclay belonged to the famous Quaker family associated with Barclay's Bank and Barclay's Brewery and was distantly connected with James Backhouse through the Gurney family.

France was the next to praise it in 1829 for its flowering most of the year and for its ease of propagation.

In 1831 Nees von Esenbeck's collection of plants flowering in the Royal Botanic Gardens in Bonn includes *L. formosa*, together with a recommendation that it be planted in the open in summer. 1832 saw it illustrated in a Belgium work by van Geel. In 1836 we learn that it was fairly common in Belgium and also that it was on sale at reasonable prices in the Berlin markets.

L. biloba aroused even more interest, partly because of its beauty, partly because no less a person than de Candolle considered it impossible for there to be pale blue flowers in the same genus as plants bearing flowers of bright scarlet and yellowish-red.

Lows of Clapton were the first to raise *L. triloba*; Veitch's of Exeter were the first to flower it. On 28th May 1841 at the Devon County Floricultural Society's exhibition in Exeter, Veitch's were awarded the large Silver Medal of the London Horticultural Society for this plant. To quote from the "Flying Exeter Post" of 3rd June 1841:

"The day was most auspicious and our ancient city was crowded with company. At the rooms the attendance of Nobility Gentry was most numerous; indeed this vast apartment was filled with rank and fashion; the dulcet sounds from Turner's fine Quadrille Band, stationed in the Orchestra, turning it into a perfect Elysian scene".

L. triloba was first illustrated in the "Botanical Register" in 1842, then in France, Belgium and Austria. In a Belgian journal we read:

"The lechenaultias are sought after, and with good reason".

By 1846 a plant of *L. triloba* exhibited at Exeter bore more than 300 open flowers.

In 1846 there is a French translation of an article from Paxton's Magazine of Botany on grafting *L. formosa* on to *L. triloba*. The result was a very pleasing mixture of blue and scarlet flowers and a correction of the weaknesses of *L. formosa* — its lack of height and firm upright growth. A warning is given about watching the plants with the most scrupulous attention, because once they have been neglected they cannot be revived.

It is difficult to find information on reactions of those who had Australian plants named after them. The great Linnaeus had ordered a teaset featuring his namesake *Linnaea borealis*. Attempts to find similar activities by Leschenault, who spent most of the rest of his life in Java, India and South America; or by Dr Dillwyn, who owned a porcelain works in Wales, have so far been fruitless. We do know that von Hügel was very attached to the Rottneist Island Daisy which had originally been given his name, before he visited Australia. He expressed his pleasure at meeting it again near Fremantle on his first day on Australian soil.

The next question worth exploring is the extent to which any of the botanists and collectors who visited our shores were personally involved in publicising our plants as horticulturists, both professional and amateur.

The most active over a long period were James Mangles and Karl von Hügel. Mangles was responsible for handling the seed collections forwarded by Georgina Molloy and the seeds and the plants despatched by James Drummond. The latter found that the time and money spent on collecting and preparing plants was not adequately remunerated. Mangles' brother Robert grew Kangaroo Paws (*Anigozanthus manglesii*) outdoors in summer and distributed seeds of all his Swan River plants widely, especially *Helipterum manglesii*.

In Vienna, von Hügel's superb garden attracted a great deal of attention. In his "Encyclopaedia of Gardening" John Loudon refers to it as containing one of the finest collections of plants in Europe, with greenhouses remarkably rich in Australian shrubs. The pillars of these greenhouses were swathed in kennedias and hardenbergas. The gardens were opened to the public three times a week and led to a large number of Australian plants being grown in other Viennese greenhouses.

Von Hügel remained in Vienna until 1849, after which he spent some time in a diplomatic post in Florence. The bulk of the Australian plants were sold to Prince Demidoff for his garden near Florence. Even in the 1860s, when he was living in Brussels, von Hügel received seven page letters from Demidoff's gardeners on the state of his plants.

Other cities with gardens offering collections of our New Holland plants in the first half of the 19th century were Frankfurt, Cologne, Hanover, Karlsruhe, Dresden, Würzburg, Strasburg, Prague, and Leningrad.

Botanical artists were also attached to private gardens, and others like E.W. Cooke, working for nurseries. Wives, sisters and daughters of the artists were also part of the work-force, although not usually acknowledged officially. According to the Librarian of the Friends Library in London, botanical drawing was one activity in which Quakers were allowed to participate — music was forbidden, as taking from them time for spiritual exercises.

France was particularly well served by its botanical artists, among the most important being the Dutch van Spaendonck, who held the chair of botanical drawing in the Paris Natural History Museum from 1774 to 1882. His most famous pupil was Redoute, best known for his roses. He was also responsible for some of the Australian plants in the fine volumes commissioned by Josephine Bonaparte.

It is interesting to realize that Leschenault de la Tour would have been trained by van Spaendonck during his course of study at the Natural History Museum. What is tantalising is the apparent loss of hundreds of drawings made by Leschenault and von Hügel (in the latter case presumed burnt during the 1849 revolution in Vienna) as well as those produced by artists em-

played in private gardens, such as Duncombe who drew many of the plants flowering in Barclay's garden at Dorking.

Many areas remain to be explored; the biographies of others associated with our plants; details of some of the important gardens with good collections of Australian plants, to mention two. What is constantly surprising is the concern for and knowledge of our plants in Britain and Europe over 125 years ago.

Acknowledgements:

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Note:

This is the text of a paper delivered at the Society for Growing Australian Plants Seminar in Perth in 1977, and is reproduced here with the permission of that Society and of the author.

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Cottage Garden Notes

by Mary Davis

A Touch of Red — or Seeing Red

My very first gardening book, purchased years ago, was "A Gardener's Log" by Edna Walling. Her writings were inspirational then and now, in the light of personal experience, very much appreciated.

Edna's flair for and understanding of colour was without parallel and her words "a touch of red" always haunt me. Red to Edna Walling was an accent colour to be used sparingly — a view with which I heartily concur.

Look closely at red flowers and you will see that there are very few pure reds. They will either contain a percentage of pink, orange or blue, and with the latter can change to cyclamen or deepen towards magenta. These, and colours such as maroon, can be very difficult to place in a garden in which the harmony of related colour is required to impart a sense of serenity.

One section of our cottage garden is known as the yellow garden and all shades of pink are excluded. The theme is of all the various shades of cream, lemon, yellow, gold and orange, highlighted with flowers of white and blue accented by silver grey foliage. Only three red flowered plants are to be found in the yellow garden. They are the bright crimson Pineapple Sage, *Salvia rutilans*, beside a navy blue *Salvia* (name as yet unknown), a vivid red *Verbena chamaedrifolia* groundcover in front of a compact double white Marguerite daisy, and a group of deep scarlet *Penstemon hartwegii* "Firebird". These are a great delight as they never seem to cease producing spires of nodding, pendulous tubular bells which look so attractive in the garden or as cut flowers. In particular they complement three *Lavendula dentata*. I like red and white in combination, and so near the Penstemons I have planted the perennial miniature Shasta daisy, *Chrysanthemum minimum* and a most useful long flowering groundcover *Silene maritima*, commonly called Bladder Campion or Witches Thimble because of its intriguing puffy calyx behind the flat white petals. All are growing in full sun with *Felicia* "San Anita", a deep Kingfisher daisy between the *Silene* and the mini Shastas.

"Well", you must be saying, "that's very patriotic — all that red, white and blue — but whatever happened to the yellow garden?" In the same bed is a marvellous buttercup yellow *Potentilla warrenii*, a perennial with an unusual serrated palmate leaf, a gorgeous soft orange poppy *Papaver pilosum*, and two green and gold variegated *Eleagnus pungens* "Maculata" together with *Osmanthus fragrans* and *Gardenia* "Professor Pucci" in a shaded background position. The latter three will all contribute their beautiful perfumes in spring, summer and autumn.

To work in the garden with perfume wafting on warm air is to indulge one's self in pure pleasure, and as I write, on the table in front of me are three blooms of *Michelia doltsopa* emitting a spicy fragrance. The creamy white flowers somewhat resemble those of *Magnolia stellata* (also perfumed) though the petals are wider and the bloom is cupped when fresh. They are produced on an evergreen tree of some 9 metres. One has been planted so as eventually to screen an unwanted view, and in this wet year has put on 5 metres of growth in six months. It can't grow quickly enough for me. More about the yellow garden in the next issue.

(Ed. Note: Mary Davis' "Cottage Garden Notes" is to be a regular feature in "The Australian Garden Journal".)

Colchicum Nomenclature

by Suzanne Price

For some years I have suspected that Colchicums are being distributed in Australia under incorrect specific names. During the 1984 flowering season I researched the subject as thoroughly as I was able, and have reached certain conclusions which may be of interest to some readers of this Journal.

I have no wish to be critical of the growers of Colchicums, for I suspect that some may have been imported under wrong names originally. During the first half of this century there was much confusion in Great Britain regarding the various species, and it was at this time that much of our stock was imported. The growers are not helped by the few bulb books that are available here, for some of them contain incorrect information, particularly concerning the tessellated group of Colchicums.

I am now convinced that the corm widely distributed as *Colchicum agrippinum* is *C. variegatum*, and the one that some growers sell as *C. autumnale* is in fact *C. agrippinum*. From three sources I have acquired what was supposed to be *C. byzantinum*. These appear to be three different Colchicums, but not one of them is *C. byzantinum*, which is distinguished by the crimson tips of the stigmas. I believe they are all forms of *C. autumnale*.

For the benefit of both commercial growers and home growers I have set out a table listing in simplified terms the identifiable features of the early flowering Colchicums which are available in Australia. I shall study in detail another year the various forms of *C. speciosum* and the large flowered hybrids.

Colchicum agrippinum

Flowering: mid-February. The first flower for me.

Flower: many from each corm, mauve chequered with purple, but not crisp tessellation. Narrow segments rarely exceeding 1cm and tapering to a blunt point.

Anther: purple.

Filament: crimson with an orange spot at the base of each.

Leaves: absent at flowering time, nearly upright with slightly waved margins.

Comments: probably a hybrid between *C. autumnale* and *C. variegatum*. An easily grown and attractive plant.

C. variegatum

Flowering: late February, about 10 days after *C. agrippinum*.

Flower: few from each corm. Pale lilac with distinct deep mauve or purple chequering, clearly tessellated. To 10 cm tall, opening wide, the outer segments 2 cm wide near the base and tapering to a sharp point.

Anther: deep purple.

Filament: white with no orange spot at the base.

Leaves: absent at flowering time, few, up to 15 cm long, spread on the ground, 1 to 3 cm wide with very wavy edges.

Comments: beautiful, easily grown plant, not flowering late here as it does in many parts of Great Britain.

C. autumnale

Flowering: late February, sometimes with *C. variegatum*, but usually some days later.

Flower: several per corm, rather starry, of a soft pinkish lilac, occasionally slightly tessellated in young flowers. Up to 15 cm tall. Styles white and curved into crooks.

Anther: yellow.

Filament: yellow.

Leaves: up to 35 cm long and 6 cm wide, usually 4 or 5, shiny green, absent at flowering time.

Comments: excellent garden plant when grown where the leaves, as they mature, do not cover smaller plants. *C. autumnale album* has white flowers which are smaller and later, but freely produced.

C. byzantinum

Flowering: with *C. autumnale* in February or March.

Flower: pale pinkish lilac, up to 20 from each corm. Strongly crooked styles slightly overtop the stamens and have a conspicuous crimson tip.

Anther: stands erect and is a dull yellow.

Filament: short and fairly straight, only half as long as the petals.

Leaves: largest of the genus, sometimes 15 cm wide and 30 cm long. Strongly ribbed, appearing very late.

Comments: probably a garden hybrid. Has the largest corm of the genus, very irregular in shape.

C. cilicicum

Flowering: usually after *C. byzantinum* is over.

Flower: dark rosy lilac to purple, long styles not crooked with a dull purple stigma.

Anther: lies horizontally on the filament and is a very conspicuous bright yellow.

Filament: very long, curving inwards at the top.

Comments: the outer sheath of this Colchicum reaches the surface and is usually visible. Seeds freely.

Further reading

Mathew, B. "Dwarf Bulbs".

Grey-Wilson, C. and Mathew, B. "Bulbs".

Bowles, E.A. "A Handbook of Crocus and Colchicum for Gardeners".

Rix, M. and Phillips, R. "The Bulb Book".



Plants Wanted

Mrs P. Coombes, 12 Chamberlain Avenue, Rose Bay, NSW 2029, is looking for *Scabiosa caucasica* (Pincushion Flower) and *Romneya trichocalyx* (Matilija Poppy).

Mr T. North, PO Box 588, Bowral, NSW 2576, is looking for seeds or plants of the following *Paeonia* species: *P. arietina*, *P. cambessedesii*, *P. daurica*, *P. emodi*, *P. mollis*, *P. peregrina*, *P. tenuifolia*, *P. veitchii*, *P. wittmanniana*.

Will anyone who is able to assist kindly get in touch with the above named people direct.

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Disease-resistant Elms

Over 20 resistant elms have now been identified, and while none of these is immune to Dutch Elm Disease each is able to resist the disease, and wilting is usually localized.

These include hybrids between *Ulmus carpinifolia*, *U. pumila* and *U. glabra*, cultivars of *U. americana*, *U. laevis*, *U. japonica* and *U. hollandica*

(from "American Horticulturist", News Edition May 1984)

Protein from tobacco

Scientists at the Institute of Food and Agricultural Science, University of Florida, have developed a process for extracting high quality protein from tobacco. This protein, it is claimed, could be used in infant formulas for children with lactose intolerance or other milk-related allergies. It could also have medicinal value for people on restricted diets who are suffering chronic kidney, heart or liver disease.

Tobacco protein can be whipped, liquified or jellied, and it can take on the flavours and textures of a variety of foods. Since it is an odourless and tasteless white powder it could be added to cereal grains, vegetables and soft drinks to make them highly nutritious. A recent report from the National Academy of Sciences Research Council says that only 41.7 grams of the substance are required to fill a human adult's daily protein requirement, as compared with 83.9 grams of soybean concentrate, 495 grams of wheat grain and 1452 grams of fresh milk.

The entire process of extraction from the fresh leaf takes about four hours. Over 2000 lb of young tobacco are required to produce 10 gallons of tobacco protein.

Cancer inhibitor in seed

U.S. Agricultural Research chemists have discovered a potent cancer inhibitor in the seeds of *Sesbania drummondii*, a species found in the southern and south-eastern States. This plant is very poisonous to livestock. The chemical inhibitor, called Sesbanimide, was isolated from about 1000 lb of seed, which yielded about .0005 lb of the chemical. Sesbanimide has exhibited anti-tumour activity at exceptionally low dose levels when tested on mice with leukaemia.

Agricultural Research scientists in Illinois have found more than ten pest control agents or cancer inhibitors in about 13,000 analyses of plant seeds.

The search for plants useful to Man goes on.

A rare Camellia lover

Japanese Serows — a rare goat-antelope — are very selective about their food. In the wild they are particularly partial to Camellias, but the Serows at the San Diego Wild Animal Park,

near Escondido, California, developed a special taste for *C. japonica* "Debutante", with the result that the Park Horticulturist had to buy 500 plants of "Debutante" to satisfy them. The Serows seem to prefer the whole plant to cut branches, devouring the flowers first, then the leaves, stems and trunk.

Foliar feeding

Farmers in the U.S. are now using foliar feeding as a routine measure, especially for fast-growing, high-yielding vegetables. In California, tomatoes sprayed with foliar fertilizer containing nitrogen and potassium produced 15% to 30% greater yields and matured faster, with fruits of higher solids content. More than twenty crops, from lettuce and beans to cabbage, peppers, squash and strawberries are regularly fed with foliar nutrients on many farms.

Research has shown that certain foliar nutrients are important in certain seasons. For example, phosphorus is needed by plants during their early stages, but it is a difficult element for roots to extract from cold soil. In summer, potassium and sometimes calcium are not absorbed by roots in sufficient quantities.

Liquid seaweed products, which are rich in trace elements and growth hormones, are excellent for liquid feeding of all types of plants. The world record corn yield of 415 bushels an acre was achieved with seaweed plus an amino-acid enzyme-polysaccharide product.

Foliar fertilizers should be applied only in the daytime, and it is important that the plants are wetted thoroughly.

(from "The Avant Gardener", published by Horticultural Data Processors, New York).

English Country Houses

While acreages have declined since 1833, many estates are now more efficiently managed and farmed than they were then, and most country houses better cared for and more accessible to the public. Large scale private land ownership has persisted in England with remarkable tenacity, and as a result much of architectural and historic interest or landscape beauty has survived which otherwise would have been destroyed.

An Anglo-American gardening exchange

Under the auspices of the Tradescant Gardeners of America and the Tradescant Trust a young gardener from Sutton Place, in England, has gone to America to gain experience in working in Colonial Williamsburg, Monticello and the Morris Arboretum, Philadelphia. Her counterpart on the staff of the Landscape Architecture Department, Colonial Williamsburg, has arrived in England to work at Sutton Place, Hatfield House and Cranborne Manor. The full cost of the exchange is borne by the Tradescant Gardeners of America, as a gesture of support for the Tradescant Trust.

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Two new Vegetables from Thompson and Morgan

Two new vegetables available in the T. & M. seed range this spring are Floccoli F1, the first hybrid cross between broccoli and cauliflower, and Radish April Cross F1.

Floccoli should prove a valuable vegetable for Australian conditions as one of its major advantages is that it grows and produces good heads in the warmer months of the year, that is at the time that broccoli and cauliflower does not.

April Cross produces long Japanese style white radishes of delicious flavour, up to 23 cm long, in only 60 days, and it can be sown all the year round.

Also released in the T. & M. range this spring is the Walking Stick Cabbage — a novelty rather than a vegetable. This plant was cultivated for many years in the Channel Islands, the leaves being stripped for cattle feed after which the plant was allowed to grow on with a small crown at the top like a miniature palm head. When fully developed the stalks, up to 6 metres in length, were used to make walking sticks and fence poles.

The Walking Stick Cabbage is easy to grow, and from an early spring sowing will often grow more than 2 metres high by autumn, and be ready for cutting. When the mature stems are cut and dried they produce an attractive wood, light yet strong. Instructions on making walking sticks from the stems are contained in every T. & M. seed packet.

Some Temperate Woody Ornamentals from South America

The following additions should be made to the nursery availability coding given in Dr Brian Morley's article in our August issue: after *Azara* and *Drimys* add the figure 1 (K. Gillander, Tasmania).

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